

18.Sep.02

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Ph.D. The Weizmann Institute of Science (1976)
Thesis on: "Structure and Functions of Regions in mRNA as Probed by
Purified Polynucleotide Phosphorylase".

MAJOR RESEARCH INTERESTS

Stress Responses, Antisense Technology, Acetylcholinesterase Biology, Molecular Neurobiology, Messenger RNA Studies
See Departmental website at <http://sites.huji.ac.il/biolchem/soreq.html>

PROFESSIONAL POSITIONS

2002 -	Vice Dean for R & D, Faculty of Natural Sciences, The Hebrew University
2000 -	Head, The Eric Roland Center for Neurodegenerative Diseases, The Hebrew University
1995 - 1999	Head, the Alexander Silberman Institute of Life Sciences, The Hebrew University
1992 - 1995	Head, Dept. of Biological Chemistry, The Hebrew University
1989 - On	Professor of Molecular Biology, Department of Biological Chemistry, The Hebrew University
1986 - 1988	Associate Professor of Molecular Biology, Department of Biological Chemistry, The Hebrew University of Jerusalem.
1983 - 1986	Associate Professor, Neurobiology Department, Weizmann Institute
1979 - 1983	Senior Scientist, Neurobiology Department, Weizmann Institute
1977 - 1979	Fogarty Fellow, Department of Molecular Cell Biology, The Rockefeller University.
1976 - 1977	Scientist, Biochemistry Department, Weizmann Institute
1969 - 1971	Research Assistant, Biochemistry Department, Weizmann Institute, Rehovot.
1967 - 1969	Research and Teaching Assistant, Department of Biochemistry, Tel Aviv University.

AWARDS AND FELLOWSHIPS

2001	Honorary Professorship, The Maimonides University, Buenos Aires
2000	Research Prize by the Israeli Minister of Health
1999	Kay Prize for Innovative research, The Hebrew University
1996	Doctor of Philosophy honoris causa in Chemistry, University of Stockholm, Sweden.
1995	Visiting Professor, College de France, Paris.
1992	U.S. Army Science Award of excellence, Miami.
1990 -	The Charlotte Slesinger Chair on Cancer Studies, The Hebrew University.
1986 - 1989	Berman Fellowship, The Hebrew University.
1985	Chancellor's Distinguished Lectureship, The University of California, Berkeley.
1982	Honorary Guest Lectureship, The European Society for Neurochemistry, Catania.
1980 - 1983	Charles Revson Career Development Chair, The Weizmann Institute.
1977	(1) B. de Rothschild Research Award. (2) H. Weizmann Postdoctoral Fellowship (declined). (3) Fogarty International Research Fellowship.
1974	Feinberg Graduate School Award, The Weizmann Institute.
1968	Shenkar Award, Tel Aviv University.

INTERNATIONAL PLENARY LECTURES (Past 5 years)

2002	International Society of Developmental Neuroscience, Sidney, Australia (February) Alzheimer's Disease, Geneva, Switzerland (April) US Ministry of Defence (DARPA), Lexington, KY (April) American Society of Neurochemistry, Miami Beach, Florida (June) Genomics GIF meeting, Heidelberg (July). VII International Cholinesterase Meeting, Pucon, Chile (November)
2001	Mayo Clinic (January) Schering, Berlin (March) The Fifth International Conference on the Progress of Alzheimer's and Parkinson's Disease, Kyoto, Japan (April) The Maimonides University, Buenos Aires, Argentina (May)

- The Gordon Research Conference on Stress induced gene Expansion, Connecticut (July)
 University of Buenos Aires, Argentina (August)
 Ageing and Dementia, Graz (September)
 The Society of Controlled Release, Paris, France (July)
 The Karolinska Institute, Stockholm, Sweden (September)
 The British Society for Cell-Matrix Associations, Newcastle (September)
 The German Society for Biochemistry and Molecular Biology, Munich, Germany (October)
 Medizinische Gesellschaft Lecture, Erlangen, Germany (October)
 The University of Heidelberg, Germany (December)
 The Winter Series on Aging, Galveston, Texas (March).
 CARES visiting lectureship, Chicago, Illinois (April).
 Japanese Society of Neurology, Tokyo (May).
 The US Society of Neuroscience, Miami, Florida (October).
 The Herman Niemeier Plenary Lecture, Chilean Society of Biology, Pucon, Chile (November).
 1998 The Sixth International Congress on Psychiatric Genetics, Bonn, Germany.
 The Fourth Congress of the Asian Physiological Societies, Brisbane, Australia.

INTERNATIONAL SOCIETIES AND COMMITTEES

- 2000-2005 Council Member, The International Society for Developmental Neuroscience
 1999-2001 President, The Israel Society for Biochemistry and Molecular Biology
 1999-2002 Member, Federation of European Neuroscience (FENS) Course Committee
 1996-2000 Member, EMBO Long term fellowships committee
 1996 Observer, European Community Committee on Biotechnology
 1993-On Steering Committee, European Neurobiology Network (ENN).

Council Member: European Society of Neurochemistry (ESN, 1992-1996), International Brain-Research Organization (IBRO, 1994-1996), International Society of Neurochemistry (ISN, 2001-2004), International Society of Developmental Neuroscience (ISDN, 2002-2005).

Member: European Molecular Biology Organization (EMBO), Human Genome Organization (HUGO), Federations of American and Israeli Societies for Experimental Biology (FASEB, FISEB), American Societies for Neuroscience & for Pharmaceutical & Experimental therapeutics, Society of Controlled Release.

NATIONAL COMMITTEES

- 2001- Member, Israel Interdisciplinary Center for Neuronal Computation (ICNC)
 2001- Bioethics Committee, Israel Academy of Sciences and Humanities
 2000-2002 Head, Infrastructure Advisory Committee to the Minister of Science
 1998-2002 FIRST Committee for interdisciplinary research, the Israel Academy of Sciences and Humanities.
 1997 Scientific Visiting Committee, The Ben Gurion University Department of Biology
 1995- Consulting Committees to the Chief Scientist at the Ministry of Health
 1995-1999 Biotechnology Committee, assigned by the Minister of Science
 1994-1999 Human Genome Committee, assigned by the Israel Academy of Sciences and Humanities.

BOARDS OF DIRECTORS

- 2002- FIRST fund, the Israel Academy of Sciences and Humanities
 1997-2002 The Landau Fund, Mifal HaPayis
 1998- Machteshim Agan (MA Industries)

HEBREW UNIVERSITY COMMITTEES

- 2002- Senate Representative in the Board of Governors.
 2002- Board of Directors
 2002- Co-Chair, International Work Group on Stress Responses, The Institute for Advanced Studies (Together with D. Engleberg).
 2001- Genomics Committee
 1995-1999 Head, The Life Sciences Institute Committees (R&D, Organization)
 1995-2000 Senate Representative in the Board of Governors
 1994-1995 Head, Committee for Life Sciences recruitments
 1990-1991 Ph.D. Studies Committee
 Infrastructure Committee

ISRAELI UNIVERSITY COMMITTEES

- 2001- Visiting Committee, Ben-Gurion University's Biology Dept. (with I. Chet)
 2002- Ramot Academic Committee for Biomedical Research, Tel Aviv University

INTERNATIONAL CONFERENCE COMMITTEES

Head, Program Committees:

2002	Co-Chair, Joint Meeting on Molecular Neuroscience, Heidelberg University-Hebrew University
2002	Joint FASEB - IUBMB Conference, Istanbul
1999	Co-Chair, Program Committee, IBRO Conference, Jerusalem.
1998	New Jersey-Israel Conference on Biotechnology, New Jersey.
1994	Tenth Biannual ESN Conference, Jerusalem.
1993	Bath Sheva de Rothschild workshop on Genome Diversity, Kfar Saba.
1991	Eighth Biannual meeting, European Society of Developmental Biology, Jerusalem.
1991	Fourth Biannual meeting, European Oocyte club, Eilat.

Member of Program Committees:

2003	6th International Conference on Alzheimer's and Parkinson's Disease
2002	7th International Symposium on Advances in Alzheimer Therapy, Geneva.
2002	11th International symposium on Cholinergic Mechanisms, St. Mauritz.
2000	6th International Symposium on Advances in Alzheimer Therapy, Stockholm.
1998	Biannual ESN Conference, St. Petersburg.
1997	International ISN/ASN meeting, Boston.
1997	International Alzheimer and Parkinson's Disease Meeting, Eilat.
1996	Israeli Biotechnology toward the year 2000, Rehovot.
1991	International Society of Neurochemistry (ISN), Montpellier.

EDITORIAL WORK

1991 - 1997	Deputy Chief Editor for Minireviews, Journal of Neurochemistry
1991 - 1997	Associate Editor, Molecular and Cellular Neurobiology
1991	A special issue on cholinesterases, Molecular and Cellular Neurobiology
1984	Molecular Biology Approach to the Neurosciences. IBRO Handbook Series, methods in the neurosciences. Vol. 7. John Wiley and Sons (London, New York).

Membership in Editorial Boards

2001-	NeuroMolecular Medicine
2000-2003	Neurobiology of Disease
2000-	Israel Medical Association Journal
1999-	European Journal of Biochemistry, Journal of Applied Toxicology
1997-	International Journal of Molecular Medicine
1995-1998	Science Spectra
1994 -	CNS Drug Reviews
1993 -	Antisense Research and Drug Development
1986	Journal of Molecular Neuroscience

TEACHING ASSIGNMENTS

Hebrew University:

2002	ETGAR (Honors) students, 1st year.
1999 - on	Selected Topics in Life Sciences Research, 1st year Biology undergraduates.
1994 - on	Molecular Processes in the brain, 3rd year and Research students in Biology.
1992 - on	Molecular Biochemistry, a laboratory course for 3rd year Biology undergraduate students.
1991 - 1995	Recombinant DNA in Biological Research, a laboratory course for honours undergraduate students.
1987 - on	1. Introduction to Molecular Biology Course, 2nd year Biology and Biochemistry students. 2. Intensive Laboratory Workshop on Eukaryotic Gene Expression: From transgene to organism; post-graduate students

International:

2001, 2003	Teacher, ISN summer course, Buenos Aires, Hong-Kong
1998	Co-organizer, EMBO practical course on Molecular Neurophysiology, Jerusalem.
1984	Organizer, EMBO practical course on Molecular Neurobiology, Rehovot.

STUDENTS AND POST-DOCTORAL FELLOWS

A. M.Sc. Students

1. **Daniel Eliyahu, 1980-1982.**
Altered Ontogenesis of Specific proteins in agranular cerebellar cortex.
2. **Ruti Parvari, 1980-1983.**
Biosynthesis of acetylcholinesterase in rat brain and embryonic *Torpedo* organ as studied by the expression of its scarce mRNA species in microinjected *Xenopus* oocytes. (Cosupervisor: I. Silman).
Feinberg Graduate School Award, 1982.
3. **Anat Safran, 1981-1983.**
Variations in translatable mRNAs during development of the rat cerebellum.
Feinberg Graduate School Award, 1983.
4. **Margit Burmeister, 1982-1984.**
Studies on the biosynthesis of epidermal growth factor in microinjected *Xenopus* oocytes. (Cosupervisor: J. Schlesinger) *Minerva Fellowship.*
5. **Adi Avni, 1983-1984.**
Isolation and partial characterization of a human acetylcholinesterase gene identified by homology to the *Drosophila* gene. *Feinberg Graduate School Special Award, 1984.*
6. **Ronit Zamir, 1986-1988.**
Chromosomal mapping of human cholinesterase genes.
7. **Shlomo Seidman, 1987-1989.**
Expression and tissue-specific processing of cloned human butyrylcholinesterase in mRNA injected *Xenopus laevis* oocytes.
8. **Efrat Lev-Lehman, 1990 - 1991.**
Localization of cholinesterase mRNA transcripts in the mammalian brain.
9. **Nilli Galyam, 1997-1999.**
~~Neuronal and hematopoietic consequences of antisense acetylcholinesterase suppression.~~ *Pollack Award, 1998. Wolf Award, 1999.*
10. **Nadav Livny, 1998-1999.**
Genetic and epigenetic contributions toward anticholinesterase insults.
11. **Nelly Gluzman, 1997-2000.**
Site-directed mutagenesis approach to drug interactions of human cholinesterases.
12. **Danijel AlBajari, 1997 - 2001.**
Structure-function relationships between acetylcholinesterase and presenilins.
Boehringer-Ingelheim fellowship, 1998-2000.
13. **Alastair Grant, (BSc University College, London), 1999 - 2001.**
Functional polymorphisms in the ACHE locus. *UK Friends of HUJ fellowship, 1999-2001.*
14. **Liat Ben Moyal, (BSc Ben Gurion University), 2001-**
Epigenetic risks associated with ACHE gene expression. *Hazelkorn fellowship, 2001-2002.*
15. **Boris Brick, (The Hebrew University), 2002.**
Stress-associated role(s) of the splicing factor SC35.
16. **Deborah Toiber, (The Hebrew University), 2002.**
Novel human and murine Acetylcholinesterase variants.
17. **Adi Gefen (co-supervisor: Raz Yirmia, Dept. of Psychology, The Hebrew University).**
Cholinergic links with cytokine gene expression.

B. Ph.D. Students (and thesis topics)

1. **Averell Gnat, 1985-1990.**
Structure-Function relationships in human cholinesterase genes and their protein products.
Landau Award, 1990
2. **Revital Ben-Azilz Aloya, 1989 - 1993.**
Post-transcriptional regulation of the human acetylcholinesterase gene. *Landau Award, 1991.*
3. **Gal Ehrlich, 1989 - 1993.**
Congenital and acquired modulations in the human cholinesterase genes in tumor and healthy tissues. *Golda Meir Award, 1989, Pollack Award, 1990.*
4. **Shlomo Seidman, 1990-1994.**
A morphogenic Role for acetylcholinesterase: Heterologous Expression Studies in microinjected embryos of *Xenopus laevis*. *Magna Cum Laude. Landau Award, 1995.*
5. **Yael Loewenstein-Lichtenstein, 1990 - 1996.**
Molecular dissection of active domains in human cholinesterases.
Pollack Award, 1991, Landau Award, 1994, Human Frontiers Post-doctoral Fellowship, 1996- 1998.

6. **Rachel Beeri-Leibson, 1991-1997.**
Human acetylcholinesterase expression in transgenic mice: An approach to the molecular control of cholinergic responses. *European Neurobiology Network Award, 1995, Lady Davies Post-doctoral Fellowship, 1997.*
7. **Efrat Lev-Lehman, 1992 - 1997.**
Developmental role(s) of acetylcholinesterase revealed by multileveled modulations of AChE gene expression.
Golda Meir Award, 1990. B. de Rothschild Post-doctoral Fellowship, 1997-1999.
8. **Mirta Grifman, 1993 - 1998.**
Modulation of cholinergic signalling by Antisense Technology.
ISN Travel Fellowship, 1995. Mexican HUJ Friends Fellowship, 1996.
9. **Meira Sternfeld, 1992 -1999.**
Structural and catalytic functions of alternative human cholinesterase variants in native and transgenic systems.
Pollack Award, 1993. Lady Davis Post-doctoral Fellowship, 1999.
10. **Daniela Kaufer, 1994 -1999.**
Molecular mechanisms underlying cholinergic stress responses in mammals.
Pollack Award, 1996. ISN Travel Fellowship, 1997. EMBO Post-doctoral Fellowship, 1999 (declined). Human Frontiers Post-doctoral Fellowship, 1999. LSRF Post-Doctoral Fellowship, 2002.
11. **Michael Shapira, 1994 - 2000.**
Neurogenetics approach to the transcriptional control of acetylcholinesterase production.
Pollack Award, 1995. Maria-Ascoli Award, 1999. Deans' Post-doctoral Fellowship, 2001.
12. **Osnat Cohen, DVM (HUJ), 1997-**
Dissection of Acetylcholinesterase Contributions toward the Cholinergic Control of Mammalian Behavior (co-supervisor: R. Yirmiya, Psychology). *ASPECT Fellowship and Best Paper Award, 2000.*
13. **Noa Farchi, 1998-**
The roles of AChE splice variants in neuronal and muscle function: transgenic engineering approach.
(co-supervisor: B. Hochner, Neurobiology). *Dean's Award, 1999, 2000, Pollack Award, 1999.*
14. **Inbal Mor, M.Sc. (HUJ), 1998-**
Morphogenic functions of acetylcholinesterase variants in terminal differentiation.
Dean's Award, 2000. Pollack Award, 2001.
15. **Ella Sklan, M.Sc. (Ben Gurion University), 1999-**
Genetic Engineering Approach to acetylcholinesterase interactions with partner proteins.
16. **Eran Meshorer, M.Sc. (HUJ), 1999-**
Delayed molecular consequences of nervous system stress responses: from DNA microarrays to altered neurotransmission pathways. *ISN Travel Award, 2001. Lichtenstein Award, 2001, ICNC PhD fellowship, 2002.*
17. **Marjorie Pick, M.Sc. (University of Melbourne), 2000-**
Hematopoietic functions of acetylcholinesterase-derived C-terminal peptides. (co-supervisors: A. Eldor and E. Naparstek, TAU).
18. **Irit Shapira, B.Sc. (in psychology, HUJ), 2000-**
Molecular mediators of cognitive responses to psychological and physiological stress. (co-supervisor: R. Yirmiya, Psychology).
15. **Tama Evron, B.Sc. (HUJ) 1999-**
Acetylcholinesterase-associated modulations of immune responses.
16. **Akiva Korn, (BSc Bar Ilan University), 1999 -**
Imaging, Physiological and molecular studies of stress and anticholinesterase exposures
Co-Supervisor: Alon Friedman (Ben Gurion University).
17. **Dror Gal, M.Sc (Tel Aviv University) 2002-**
- C. M.D. Ph.D. Students (and thesis topics)**
1. **Patrick Dreyfus, M.D. (The University of Paris), 1986-1989.**
Multileveled regulation of the human cholinesterase genes and their protein products.
INSERM exchange visitor.
2. **Yaron Lifson-Lapidot, M.D. (Ben-Gurion University), 1989-1991.**
Elements of cholinergic signalling in Hematopoiesis.
Levi Eshkol Fellowship
3. **Daniel Grisaru, M.D. (Tel Aviv University), 1996 - 2001.**
Morphogenic Function(s) of Acetylcholinesterase variants and fragments thereof in normal and pathological development.

- (co-supervisor: A. Eldor, TAU). *Meirbaum award*, 1998.
4. Asher Salmon, M.D. (Technion), 1998 – 2001.
Genetic Engineering approaches into cholinesterase interactions with Xenobiotic agents.
ENN short-term fellowship, 1998. *Barclays Post-doctoral Fellowship*, 2001.
 5. Chava Perry, M.D. (HUJ), 2000-
Molecular mechanisms underlying acetylcholinesterase associated tumorigenesis.
(co-supervisor: the late A. Eldor, TAU)
Meirbaum Award, 2000. *Long-term Ministry of Health Fellowship*, 2001.
 6. Michael Levy, M.D./Ph.D. program, (HUJ), 2001-
Antisense modulations of cognitive processes.
Co-Supervisor: Hagai Bergman (Faculty of Medicine).
 7. Rinat Kahat, M.D. (Technion), 2001-
Acetylcholinesterase in retinal functioning.
(co-supervisor with Ido Perlman, Rapaport Institute).
- D. M.D. Basic Research Fellows**
1. Nissim Razon, M.D., (Tel Aviv University) 1982.
Selective Impairment of Gene Expression in Human Brain Tumors.
Bornstein Award, 1982.
 2. Avi Matzkel, M.D., (Tel Aviv University), 1983.
Polymorphism of acetylcholinesterase in fetal human tissues.
 3. Gustavo Malinger, M.D., (Tel Aviv University), 1986.
The Expression of Human Cholinesterase Genes in Normal and Malignant ovary.
Israel Fertility Association Award, 1986.
 4. Eduardo Schejter, M.D., (Tel Aviv University), 1987.
Expression of human cholinesterase genes in muscle.
 5. Ari Ayalon, M.D., (Tel Aviv University), 1988.
Expression of human cholinesterase genes in fetal and neoplastic brain tissues as detected by in situ hybridization.
 6. Adrian Katz, M.D., (Tel Aviv University), 1989.
Spermatogenic expression of human cholinesterase genes.
 7. Asher Salmon, M.D., (Technion, Haifa), 1997.
Variable interactions of alternative cholinesterases with heroin derivatives.
 8. Tatiana Wender, M.D., (Ben Gurion University), 2001.
ACHE promoter polymorphisms in occupationally-induced Parkinson's Disease.
 9. Amir Dori, M.D., PhD (Ben Gurion University), 2002.
Neurogenic Functions of Embryonic AChE.
- E. Post-Doctoral Fellows**
1. Sherena Cedar, Ph.D. (in Immunology, London University) 1983 - 1984.
The expression of cholinesterase in inducible human erythroleukaemic cells lines.
EMBO Post-Doctoral Fellowship.
 2. Catherine Prody, Ph.D. (in Biochemistry, University of California, Berkeley) 1984 - 1988.
Molecular cloning of human cDNA sequences coding for cholinesterases.
MDA Fellow.
 3. Judy Lieman-Hurwitz, Ph.D. (in Virology, Weizmann Institute) 1987-1989.
Expression of cloned acetylcholinesterase cDNA in microinjected *Xenopus* oocytes.
Levi Eshkol Fellowship.
 4. Lewis Neville, Ph.D. (in Neurobiology, University of Southampton) 1989-1991.
Expression of natural and site-directed cholinesterase variants in microinjected *Xenopus* oocytes.
Golda Meir Fellowship.
 5. Averell Gnatt, Ph.D. (in Biochemistry, Hebrew University), 1991-1992.
site-directed mutagenesis of recombinant human butyrylcholinesterase.
Honorary ESN Lecturer, 1992, *Dublin*
 6. Rachel Karpel, Ph.D., (in Ecology, Hebrew University), 1991 - 1994.
Cholinergic signalling and cell division control.
ICRF Fellowship.
 7. Mikael Schwarz, Ph.D. (in Botany, Hebrew University), 1992- 1994.
Molecular dissection of catalytic events of cholinesterases.
Levy Eshkol Fellowship.
 8. Ellen Chaikin, Ph.D. (in Developmental Biochemistry, Hebrew University), 1993.
Expression of cholinesterases in osteogenesis.

- Golda Meir Fellowship.*
9. **Christian Andres, M.D., Ph.D** (in Neurochemistry, University of Strasbourg), 1993 - 1995.
Transgenic expression of human acetylcholinesterase in murine nervous system.
INSERM & NCRD-Israel Ministry of Science Exchange Fellowships.
 10. **Alon Friedman, M.D., Ph.D.** (in Neurobiology, Ben Gurion University), 1996-1998.
Electrophysiological and molecular mechanisms underlying cholinergic hyperexcitation.
Smith Psychobiology Post-doctoral Fellowship. Foulkes Prize, 1997. Teva Prize, 1997.
 12. **Ron Broide, Ph.D.** (in Neurobiology, University of CA., Irvine), 1995-1997.
Photoreceptor degeneration in AChE transgenic mice.
Valazzi - Pikoosky Fellowship.
 13. **Christina Erb, Ph.D.** (in Pharmacology, University of Mainz), 1999-2000.
Transgenic approach to the molecular neuropharmacology of cholinergic transmission.
Long-Term Minerva Fellowship.
 14. **Klara Birikh, Ph.D.** (in Molecular Biology, Moscow University), 1999 - 2000.
Conditional antisense suppression of neuronal acetylcholinesterase production.
Long-Term EMBO Fellowship.
 15. **Cesar Flores Flores, Ph.D.** (in Biochemistry, Univ. of Murcia, Spain) 1999 -
Combinatorial search for monoclonal anti-AChE antibodies.
Golda Meir Fellowship (declined); Long-term FEBS Fellowship.
 16. **Amir Dori, MD, PhD** (in Physiology, BGU), 2002-
Neurodevelopmental implications of acetylcholinesterase gene expression.
Smith Psychology Post-doctoral Fellowship.
- F. MAJOR EXTRAMURAL COLLABORATIONS**
1. **Charles J. Arntzen, Chariman**, Department of Plant Biology, and Tsafir Mor, Research Associate, Arizona State University, Member, US President's Advisory Council on Science.
Human acetylcholinesterase production in transgenic tomatos (DARPA grant 2001-2004).
 2. **Fritz Eckstein**, The Max Planck Institut for Experimental Medicine, Göttingen, W. Germany.
Use of Antisense oligodeoxynucleotides for the *in vivo* modulation of cholinergic signalling and survival.
(Ministry of Science grant, 1991 - 1994; GIF grant, 1994-1997;
Joels Visiting Professor November 1997 - February 1998, Hebrew University of Jerusalem).
 3. **The late Amiram Eldor, Chariman**, Department of Hematology, Sourasky Medical Center, Tel Aviv.
Hematopoietic function(s) of human acetylcholinesterase variants.
 4. **Alon Friedman**, Department of Neurosurgery, Soroka Medical Center, Beersheva.
US Army Medical Research and Development Grant, 1999-2004
 5. **Israel Hanin, Chariman**, Department of Pharmacology & Experimental Therapeutics, Loyola University, Chicago. Cholinotoxic effects on brain-region specific alterations in G,C-rich transcripts. *Lady Davies Fellow, 1993. Smith Psychobiology Fund, 1993.*
 6. **James Patrick**, Vice President and Dean of Research, Baylor Medical School, Houston, Texas.
Transgenic modulations of cholinergic functions. (BSF Grants, 1989-1992, 1993-1996, 1997-1999, 2000- 2002).
 7. **Gene Robinson**, Dept. of Entomology, University of Illinois, Urbana, IL U.S.A.
Molecular Genetics approach to Honey Bee Acetylcholinesterase. *Fullbright Fellow, 1996. Smith Psychobiology Fund, 1996.*
 8. **Raz Yirmiya**, Dept. of Psychology, HUJ.
Cholinergic modulations of mammalian behavior
 9. **Haim Zakut**, The Sackler Faculty of Medicine, Tel Aviv University.
Expression of human cholinesterase genes in fetal development and in neoplastic tissues (Academy grant, 1994-1996; Ministry of health grant, 1995-1996).

PATENT APPLICATIONS

Title	Application/ Pat. N	Application Date	Current Status	Yissum (Luzz.)
Genetically Engineered Human Cholinesterases	IL Priority	21/03/89	Renewed 03/02/02	1961.00 (89703)
	EU 0 388 906	20/03/90	Granted 14/06/95	1961.03 (90105274)
	F 0 388 906	14/06/95	Granted 14/06/95	1961.04
	CH 0 388 906	14/06/95	Granted 14/06/95	1961.05
	GB 0 388 906	14/06/95	Granted 14/06/95	1961.06 (90105274.6)
	DE 690 20018.8	14/06/95	Granted 14/06/95	1961.07
	US 5,595,903.	02/08/93	Granted 21/01/97	1961.08 (6321) (08/111,314)
Transgenic Animal Assay System for Anticholinesterase Substances	US 5,932,780	09/01/95	Granted 03/08/1999	2098.01 (08/370, 156 [814095])
	PCT/US 95/02806	28/02/95	Published 31/8/95	2098.02 (6312)
	EU 95913580.7	28/02/95	Filed	2098.03
	US 6,025,183	06/03/97	Granted 15/2/00	2098.04
	US 09/310,638	12/5/99	Examined	2098.05
Therapies Utilizing Antisense Oligonucleotides and Butyryl- Cholinesterase Inhibitors	US	12/12/96	Provisional	(60/035,266)
A method and composition for enabling passage through the blood-brain barrier	PCT/US97/21696	20/11/97	Published 28/5/9	2151.02 (6439)
	US 6,258,780	20/11/97	Granted 10/7/01	2151.03
	IL 129990	20/11/97	Filed	2151.04
	AUS 53642/98	20/11/97	Granted 10/7/01	2151.05
	CAN 2272280	20/11/97	Filed	2151.06
	JAP 10-523989	20/11/97	Filed	2151.08
Method of Screening For Genetic Predisposition to Anticholinesterase Therapy	PCT/US9 00322	11/1/96	Published 18/7/96 WO96/21744	2207.01 (6785)
	US 08/370,204	09/01/95	Allowed partially appeal 13/10/99	2207.03
	CAN 2,209,683	11/1/96	Filed	2207.04
	JAP 8-521788	11/1/96	Published 24/11/98	2207.06
	US 5,807,671 Priority	9/1/95	Granted 15/9/98	2207.00
	US 6,326,139	09/01/95	Granted 4/12/2001	2207-05

Synthetic antisense oligodeoxynucleotides targeted to human ACHE (Title as US patent)	PCT/US 97/23598	12/12/97	Published 18/6/98 WO98/26062	2304.01 (6707)
	US 6,121,046	12/12/97	Granted 19/09/00	2304.02
	IL 130162	12/12/97	Filed	2304.03
	AU 727611	12/12/97	Granted 14/10/00	2304.04
	CAN 2,274,985	12/12/97	Filed	2304.05
	EP 0951536	12/12/97	Published 15/9/99	2304.06
	JP 10-527069	12/12/97	Filed	2304.07
Synthetic antisense oligodeoxynucleotides and pharmaceutical composition containing them	US 09/572,630 Cip		Examined	2304.08
	PCT/EP 93/00911	15/4/93	Published 28/10/93 WO93/21202	2042.01 (6692)
	JAP 517984/93	15/4/93	Abandoned	2042.02
	EP 0636137	15/4/93	Granted Validated in FR,DE & UK	2042.03
	US 5,891,725	1/12/94	Granted 6/4/99	2042.05
	CAN 2,118,235	15/4/93	Filed	2042.06
	US 6,110,740 Cip patent	2/5/98	Granted 29/8/00	2042.07
Cip title: Synthetic antisense oligodeoxynucleotides targeted to ACHE	IL 101600 (Priority)	15/4/92	Granted 30/5/00	2042.00
Title: Deoxyoligonucleotides and pharmaceutical compositions containing the same				
Methods and compositions for the treatment of injury to the central nervous system	PCT/US 98/04503	6/3/98	Published 11/9/98 WO98/39486	2325.01 (6720)
	AUS 64521/98	6/3/98	Abandoned	2325.02
	CAN 2,283,068	6/3/98	Filed	2325.03
	US 09/380532	6/3/98	Examined	2325.04
	EP 98910229.8		Abandoned	2325.05
Diagnostic uses of antibodies against AChE or C-terminal peptides thereof	IL 130225 Priority	31/05/99	Examined	2463.00 (8248)
	PCT/IL 00/00312	31/5/00	Published 2/12/00 WO00/73343	2463.01
	US	31/5/00		2463.02
	EU	31/5/00		2463.03
	CA	31/5/00		2463.04
Pharmaceutical compositions comprising AChE AS-ODNs for the treatment of muscular and neuromuscular disorders	IL 132972	16/11/99	Filed	2428.00 (6711)
	PCT/IL 00/00763	16/11/00	Filed	2428.01
Human antibodies to specific AChE variants and their use as diagnostic agents for cholinergic neurodeterioration processes	IL 140071	4/12/00	Filed	2557.00 (12261)
	PCT/IL 01/00464	19/06/01	Filed	2557.01
Antisense oligonucleotide against human AChE and uses thereof	IL 143379	24/05/01	Filed	2584.00 (13122)
System and method for assaying drugs	US 60/247,970	14/11/00	Exhausted filed	2347 (13825)
	PCT/IL01/01051	14/11/01		
Acetylcholinesterase-derived peptides and uses thereof	US (cip of PCT)		Just filed	2356.03 (7811)
	PCT/IL00/00311	31/5/00		2356.02
	IL 130224	30/05/99		2356.00
	IL 131707	02/09/1999		2356.01

Genetically engineered proteins having human cholinesterase activity	US 5,215,909 (cip App) EU 206 200	18/jun/1986 18/06/1986	Granted 01/jun/1993 Granted 23/09/1992	0011.05 0011.03
Hybrid transgenic mouse with accelerated onset of Alzheimer type amyloid plaques in brain (with Mayo Clinic)			Pre-filing	2622.00

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HERMONA SOREQ

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